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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,503	07/11/2003	Joachim E. Klee	KON-76B	3984

7590 09/06/2005

Douglas J. Hura, Esquire  
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York, PA 17405

EXAMINER
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PENG, KUO LIANG

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/617,503

Applicant(s)

KLEE ET AL.

Examiner

Kuo-Liang Peng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/5/04 IDS.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 5 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/5/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

In the 4<sup>th</sup> line from the bottom of page 14, should “IV V IV” be -- IV  
V VI --?

In the last two lines of page 14, the statement “Q is an ether, an ester, an urethane or thiourethane linking group” causes confusion because when Q is an ether, formulae IV, V or VI are attached to the backbone of the hybrid monomer compound via a peroxy linkage.

### *Claim Objections*

2. Claims 5 and 7 are objected to because of the following informalities:

In Claim 5 (page 31, line 4 from bottom), should “alkenyl” be -- alkenylene  
--?

In Claim 5 (5<sup>th</sup> line from bottom), should “IV V IV” be -- IV  
V VI --?

In Claim 7 (line 3), after “ethyleneglycol dimethacrylate”, should there be --  
, --?

In Claim 7 (line 4), after “diethyleneglycol dimethacrylate”, should there be -- , --?

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-5, 8-9 and 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is

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(a) merely exemplary of the remainder of the claim, and therefore not required, or  
(b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, Claim 4 recites the broad recitation "A is a polymerizable moiety" (line 7), and the claim also recites "preferably an acrylate or methacrylate group" (lines 7-8) which is the narrower statement of the range/limitation. The same issues occur in Claim 5 (page 31, lines 2 and 8 from bottom and page 32, line 4).

In Claim 4 (line 13), "X is a nitrogen atom" causes confusion because when A is an acrylate or methacrylate group,  $(A)_n-X$  will be a group of  $(H_2=C(H \text{ or } CH_3)-C(O)O)_n-N$ .

In Claim 5, "R<sub>3</sub>" is not defined in formulae 2, 6 and 8-10.

In Claim 5 (3<sup>rd</sup> to 4<sup>th</sup> line from bottom), the statement "Q is an ether, an ester, an urethane or thiourethane linking group" causes confusion because when Q is an ether, formulae IV, V or VI are attached to the backbone of the hybrid monomer compound via a peroxy linkage.

Regarding Claims 8, 9 and 15-16, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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In Claim 8 (lines 2-3 and 4-5), the Markush languages are improper.

In Claim 16 (last line), before “furfuryl” should there be -- or --?

In Claim 17, the word “obtainable” is not a positive limitation, and does not constitute a limitation in any patentable sense. See *In re Hutchinson*, 33 CCPA 879, 154 F. 2d 135, 69 USPQ 138 (CCPA 1946). Applicants are advised to replace “obtainable” by -- obtained --.

In Claim 17 (line 2), it is not clear as to what “any one of claim 1” refers to.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-7 and 9-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Klee (US 2003/0055167).

For Claims 1-12, 14-15 and 17, Klee discloses a process for preparation a polymerizable dental composition by hydrolytically condensing a hybrid monomer component and a monomer component wherein spherical polymerizable nanoparticles are formed. ([0011]-[0035], [0039], [0044], [0046] and Examples) The average particle size of the nanoparticles is further exemplified in Examples. An inorganic filler and/or an organic filler can be used. ([0042]) A polymerization initiator, a stabilizer and a catalyst can be used. ([0041]-[0044] and Examples) The hydrolysis can be carried out in the presence of organic solvent such as THF. ([0055] and [0070]) For Claim 6, the hybrid monomers are further exemplified as the one described at the bottom of page 6 and the one in page 10, line 9. For Claims 7 and 16, the monomer component is described in [0040]. For Claim 13, the hydrolysis can be carried out under neutral conditions as described in Application Example 8 wherein all reactant are substantially neutral.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole

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would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klee in view of Wolter (US 6 124 491).

Klee discloses a process for preparation a polymerizable dental composition, supra, which is incorporated herein by reference. Klee further teaches the use of hydrolyzable compounds of transition element. (claim 25) Klee is silent on the use of the specific metal compounds set forth in the instant claim. Wolter teaches the use of use of hydrolyzable/condensable metal components such as metal alkoxides or metal complexes such as metal acetyl acetonates or hydrolytic condensable compounds of transitional metals, lanthanides or actinides to be co-condensed with a hydrolyzable/polymerizable silane in a dental composition. (col. 2, line 48 to col. 4, line 43, col. 28, lines 52-58, col. 31, lines 9-29 and col. 34, line 32 to col. 35, line 22) The motivation of using these hydrolyzable/condensable metal compounds is to provide X-ray opacity. (col. 28, lines 27-58) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate Wolter's metal compound into Klee's composition. Especially, Wolter is in the same field as that of Klee's endeavor.



9. Claims 1-4 and 7-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolter (US 6 124 491).

Wolter discloses a process for the preparation of a polymerizable composition by reacting a silane compound of formula I in the presence of polymerizable components and/or other hydrolyzable/condensable components via a sol-gel process. (col. 2, line 24 to col. 4, line 43, col. 29, lines 7-27, col. 35, lines 23-56 and Examples) Since Wolter's process is substantially the same as that of Applicants', Examiner has a reasonable basis to believe that spherical nanoparticles are formed. Wolter is silent on the average particle size of the nanoparticles. However, Wolter teaches the use of the composition in the filed of optics. In optics, the clarity of the composition is obviously very critical. Furthermore, the particle size of the nanoparticles will affect the clarity of the composition. In other words, the particle size is a Result-Effective variable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize nanoparticles with whatever particle size through routine experimentation in order to obtain a composition with a desired clarity. Especially, Applicants do not show the criticality of the particle size. See MPEP 2144.05 (II). Wolter is silent on the amounts of the silane compound and

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the polymerizable components. However, Wolter teaches that the amounts of the silane compound and the polymerizable components can affect the properties of the resulting inorganic-organic polymer. (col. 40, lines 36-49) In other words, the amounts of the silane compound and the polymerizable components are Result-Effective variables. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the silane compound and the polymerizable components in whatever amounts in order to obtain desired properties of the resulting polymer. Especially, Applicants do not show the criticality of the amounts of the silane compound and the polymerizable components. See MPEP 2144.05 (II). The polymerizable components are described in col. 29, line 50 to col. 30, line 14. An example of the polymerizable component is 1,12-dodecanedioldimethacrylate. (Example 7) The composition can be a dental composition. (col. 28, lines 52-58) The hydrolyzable/condensable components such as metal alkoxides or metal complexes such as metal acetyl acetonates are described in col. 34, line 32 to col. 35, line 22. Additional hydrolytic condensable compounds of transitional metals, lanthanides or actinides can be used. (col. 31, lines 9-29) The composition can contain inorganic and/or organic fillers. (col. 36, lines 34-47) Wolter further teaches the use of an initiator and a stabilizer. (col. 30, lines 54-67 and col. 36, lines 34-47) A basic or an acidic

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catalyst can be used. (col. 36, lines 1-4) A solvent such as THF, acetone, etc. can be used. (col. 35, lines 57-64)

9. It is noted that the certified copy of the foreign priority paper, DE 10101537.2, is missing.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

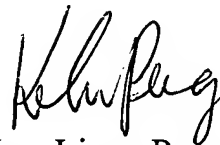
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klp

August 30, 2005



Kuo-Liang Peng  
Primary Examiner  
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